PROGRAM

Data Compression Conference (DCC 2013)
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Snowbird, Utah
March 20 - 22, 2013

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SCHEDULE OVERVIEW:

Tuesday Evening, March 19:
Registration and Reception (7pm - 10pm)

Wednesday, March 20:
Morning: Technical Sessions 1, 2, 3 (8:00am - 12:20pm)
Mid-Day: Keynote Presentation (2:30pm - 3:30pm)
Afternoon: Technical Sessions 4, 5 (4:00pm - 7:00pm)

Thursday, March 21:
Morning: Technical Sessions 6, 7 (8:00am - noon)
Mid-Day: Technical Session 8 (2:30pm - 3:50pm)
Afternoon: Poster Session and Reception (4:00pm - 7:00pm)

Friday, March 22:
Morning: Technical Sessions 9, 10, 11 (8:00am - 1:00pm)
TUESDAY EVENING
Registration / Reception, 7:00-10:00pm (Golden Cliff Room)

WEDNESDAY MORNING

SESSION 1 (Special Sessions on HEVC, Part 1)

8:00am: Tunneling High-Resolution Color Content through 4:2:0 HEVC and AVC Video Coding Systems
Yongjun Wu, Sandeep Kanumuri, Yifu Zhang, Shyam Sadhwani, Gary J. Sullivan, and Henrique S. Malvar
Microsoft Corporation

8:20am: Fast Transforms for Intra-prediction-based Image and Video Coding
Ankur Saxena, Felix C. Fernandes, and Yuriy A. Reznik†
Samsung Telecommunications America, †InterDigital Communications

8:40am: Model Correction for Cross-Channel Chroma Prediction
Christophe Gisquet and Edouard François
Canon Research France

9:00am: A Parametric Merge Candidate for High Efficiency Video Coding
Michael Tok, Marko Esche, Alexander Glantz, Andreas Krutz, and Thomas Sikora
Technische Universität Berlin

Break: 9:20am - 9:40am

SESSION 2 (Special Sessions on HEVC, Part 2)

9:40am: Coding Tree Depth Estimation for Complexity Reduction of HEVC
Guilherme Correa, Pedro Assuncao†, Luciano Agostini‡, and Luis A. da Silva Cruz
University of Coimbra, †Polytechnic Institute of Leiria, ‡Federal University of Pelotas

10:00am: Fast Coding Unit Depth Decision Algorithm for Interframe Coding in HEVC
Yongfei Zhang, Haibo Wang, and Zhe Li
Beihang University

10:20am: Highly Parallel Framework for HEVC Motion Estimation on Many-Core Platform
Chenggang Yan, Yongdong Zhang, Feng Dai, and Liang Li
Chinese Academy of Sciences

10:40am: Low Complexity Rate Distortion Optimization for HEVC
Siwei Ma, Shiqi Wang, Shanshe Wang†, Liang Zhao†, Qin Yu, and Wen Gao
Peking University, †Harbin Institute of Technology

Break: 11:00am - 11:20am

SESSION 3

11:20am: Decoder-Side Super-Resolution and Frame Interpolation for Improved H.264 Video Coding
Hasan F. Ates
İsık University

11:40am: Image Super-Resolution via Hierarchical and Collaborative Sparse Representation
Xianming Liu†, Deming Zhai†, Debin Zhao†, and Wen Gao†,‡
†Harbin Institute of Technology, ‡Peking University

12:00pm: Progressive Image Restoration through Hybrid Graph Laplacian Regularization
Deming Zhai†, Xianming Liu†, Debin Zhao†, Hong Chang‡, and Wen Gao‡
†Harbin Institute of Technology, ‡Chinese Academy of Sciences
The Arrival of the High Efficiency Video Coding Standard (HEVC)

Gary Sullivan
Microsoft

With the first edition of the High Efficiency Video Coding Standard (HEVC) being completed just weeks before the conference, DCC 2013 will be the first major technical conference to feature a presentation of its final design. HEVC marks the next major milestone in the history of digital video compression. For the first time since the development of H.264/MPEG-4 AVC, the standardization community has developed and corralled recent advances in compression technology to form a coherent and fully-documented design that will enable broad use. About two decades ago, the MPEG-2 video standard created digital video television as we now know it. One decade ago, the H.264 / MPEG-4 AVC standard provided a major leap forward in compression capability and addressed the full range of video applications with a single interoperable standard. Now HEVC will provide the next major advance. HEVC can be implemented readily in practical products and can provide approximately twice the compression performance of prior standard technologies - roughly cutting in half the bit rate necessary to achieve a given level of video quality. Even for the coding of still images, the HEVC technology represents a substantial advance in compression capability. In addition to compression advances, HEVC has been designed for practical implementation and particularly with a special emphasis on the use of parallel-processing architectures. Like MPEG-2 and H.264 / MPEG-4 AVC before it, HEVC has been developed jointly by the two major standardization organizations for video coding - the ITU-T Video Coding Experts Group (VCEG) and the ISO/IEC Moving Picture Experts Group (MPEG). The partnership is known as the Joint Collaborative Team on Video Coding (JCT-VC). The new HEVC standard will thus be formally referenced both as ITU-T H.265 and ISO/IEC 23008-2 (MPEG-H Part 2). In addition to completing the first edition of the HEVC standard, these organizations are now hard at work on developing substantial extension technologies to enhance the design with profiles for application range extensions (such as enhanced chroma formats), Scalable Video Coding (SVC), and substantial new 3D capabilities.

Gary J. Sullivan has been a longstanding chairman or co-chairman of various video and image coding standardization activities in ITU-T VCEG and ISO/IEC MPEG, including the "Advanced Video Coding" (AVC) standard ITU-T H.264 | ISO/IEC 14496-10 and the new "High Efficiency Video Coding" (HEVC) standard ITU-T H.265 | ISO/IEC 23008-2. He is a Video and Image Technology Architect in the Windows division of Microsoft Corporation, where he has been the originator and lead designer of the DirectX Video Acceleration (DXVA) video decoding feature of Microsoft Windows. He has received the IEEE Masaru Ibuka Consumer Electronics Award, the IEEE Consumer Electronics Engineering Excellence Award, the INCITS Technical Excellence Award, the IMTC Leadership Award, and the University of Louisville J. B. Speed Professional Award in Engineering. The team efforts that he has led have been recognized by an ATAS Primetime Emmy Engineering Award and a pair of NATAS Technology & Engineering Emmy Awards. He is a Fellow of the IEEE and SPIE.
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THURSDAY AFTERNOON

POSTER SESSION AND RECEPTION

4:00-7:00pm

In the Golden Cliff Room

(Titles are listed at the end this program;
abstracts of each presentation appear in the proceedings.)
FRIDAY MORNING

SESSION 9

8:00am: Faster Compressed Top-k Document Retrieval

Wing-Kai Hon, Rahul Shah†, Sharma V. Thankachan†, and Jeffrey Scott Vitter‡
National Tsing Hua University, †Louisiana State University, ‡The University of Kansas

8:20am: Faster Compact Top-k Document Retrieval

Roberto Konow†, ‡ and Gonzalo Navarro†
†University of Chile, ‡Univ. Diego Portales, Chile

8:40am: Context-Based Algorithms for the List-Update Problem under Alternative Cost Models

Shahin Kamali, Susana Ladra†, Alejandro López-Ortiz, and Diego Seco†, ‡
University of Waterloo, Canada, †University of A Coruña, Spain,
‡University of Concepción, Chile

9:00am: An Adaptive Difference Distribution-Based Coding with Hierarchical Tree Structure for DNA Sequence Compression

Wenrui Dai, Hongkai Xiong, Xiaojian Jiang†, and Lucila Ohno-Machado†
Shanghai Jiaotong University, †University of California, San Diego

9:20am: Compressing Huffman Models on Large Alphabets

Gonzalo Navarro and Alberto Ordóñez†
University of Chile, †University of A Coruña

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S. M. Hossein Tabatabaei Yazdi and Serap A. Savari
Texas A&M University

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Elsa Dupraz†, Aline Roumy‡, and Michel Kieffer†, ♦
†Univ Paris-Sud, ‡INRIA, ♦Institut Universitaire de France

10:40am: Near in Place Linear Time Minimum Redundancy Coding

Juha Kärkkäinen and German Tischler†
University of Helsinki, †Wellcome Trust Genome Campus

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Maxime Crochemore†, ✰, Alessio Languù, and Filippo Mignosi‡
†King’s College London, ✰University of L’Aquila, ✰Université Paris-Est, France

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Mortuza Ali and Manzur Murshed
Monash University

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Amir Ingber, Thomas Courtade, and Tsachy Weissman
Stanford University

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†Universitat Autònoma de Barcelona, ‡University of Warwick

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